

THE LARVA OF *CHALCIDOMORPHINA AURATA* ENDERLEIN 1914
(DIPTERA: STRATIOMYIDAE) FROM "ILHA DE MARAMBAIA,"
RIO DE JANEIRO, BRAZIL

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Abstract.—The larva of *Chalcidomorphina aurata* is described for the first time, based on six larvae and the puparium. Larvae were collected under the bark of fallen trees in a tropical rain forest at Ilha da Marambaia, State of Rio de Janeiro, Brazil (23°04'S, 43°53'W, approximately 42 km²). Some biological notes are also presented.

Key Words: Stratiomyidae, Pachygastrinae, *Chalcidomorphina aurata*, soldier-flies, larvae, tropical rain forest

The pachygastrine genus *Chalcidomorphina* Enderlein, 1914, with four species, is widespread in the Neotropics, from Mexico to Brazil: *Chalcidomorphina aurata* Enderlein, 1914 (Mexico, Panama, Colombia, Peru and Brazil); *C. plana* James, 1967 (Dominica); *C. terataspis* James, 1974 (Peru); and *C. argentea* McFadden, 1980 in James et al., 1980 (Mexico) (James 1973, James et al. 1980).

James (1974) recognized *Chalcidomorphina* based on the following characters: (1) antenna elongate, with long scape and flagellum, and (2) scutellum projected into an elongate, spur-like process (Fig. 1). James (1974) segregated *Chalcidomorphina* and *Dactylacantha* Lindner, 1964, from the related genus *Dactylodeictes* Kertész, 1914, based on wing venation.

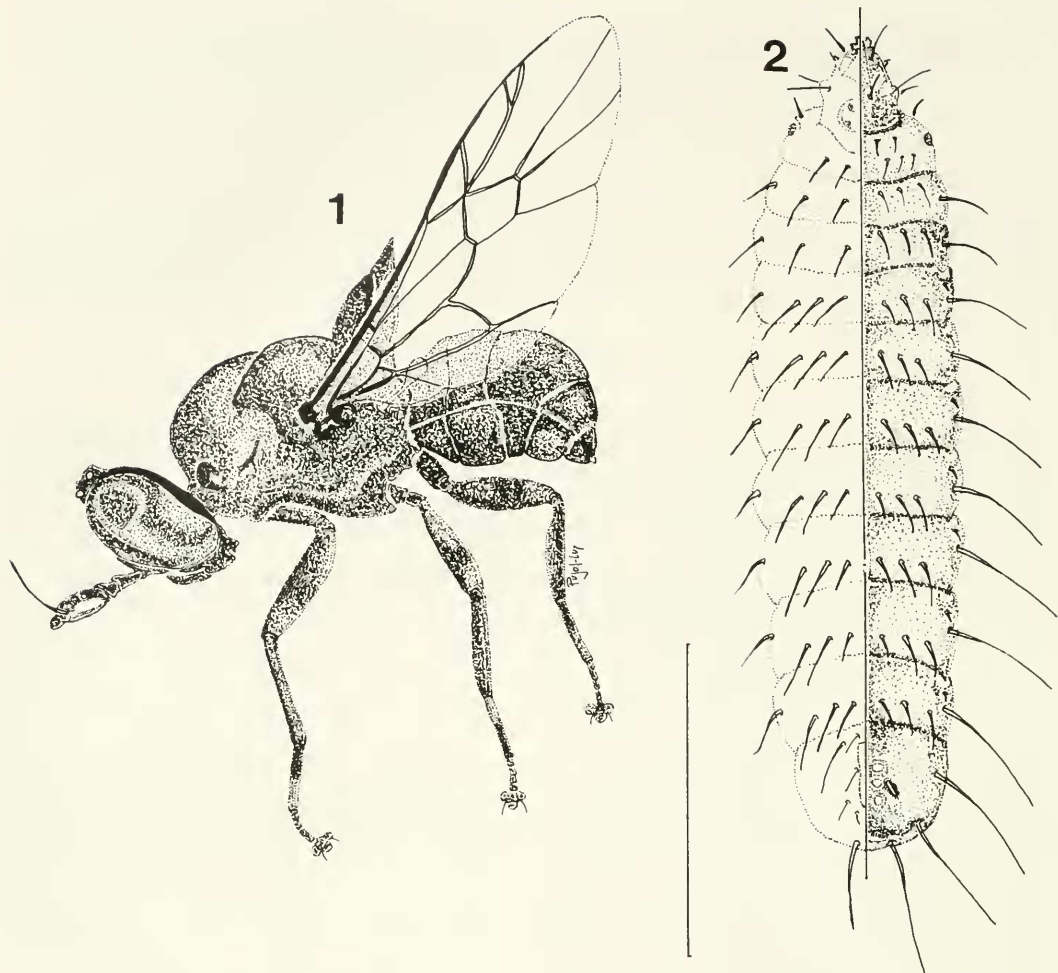
Pachygastrinae larvae from the Neotropics have never been described. McFadden (1967) and James (1981) furnished the last records of the known North American larvae of this subfamily. They studied Nearctic representatives of some genera that are

widespread over much of the Americas (e.g., *Eidalimus* Kertész, 1914 [= *Eucynipimorpha* Malloch, 1915; = *Eupachygaster* authors, part, not Kertész, 1911]; *Gowdeyana* Curran, 1928 [= *Eupachygaster* authors, part, not Kertész, 1911; = *Paraeidalimus* Lindner, 1964] and *Zabrachia* Coquillett, 1901) (James et al. 1980).

Here we describe the larva of *Chalcidomorphina aurata* for the first time, based on six larvae and the puparium. Some of the larval features employed in this work are the same used by McFadden (1967) and James (1981) to describe other genera.

Chalcidomorphina larvae were collected under the bark of fallen trees in a tropical rain forest at Ilha da Marambaia, State of Rio de Janeiro, Brazil, (23°04'S, 43°53'W, approximately 42 km²) outside and inside the forest behind a dam (a restricted area of the Brazilian Navy).

The junior author collected approximately 35 to 50 larvae of different instars at each site belonging to two genera, *Chalcidomorphina* and *Cyphomyia* Wiedemann, 1819 (Clitellariinae). Field and laboratory



Figs. 1-2. *Chalcidomorpha aurata*. 1. Female habitus (all pilosity is omitted). 2. Larva (right in dorsal view; left in ventral view). Scale line = 2.0 mm.

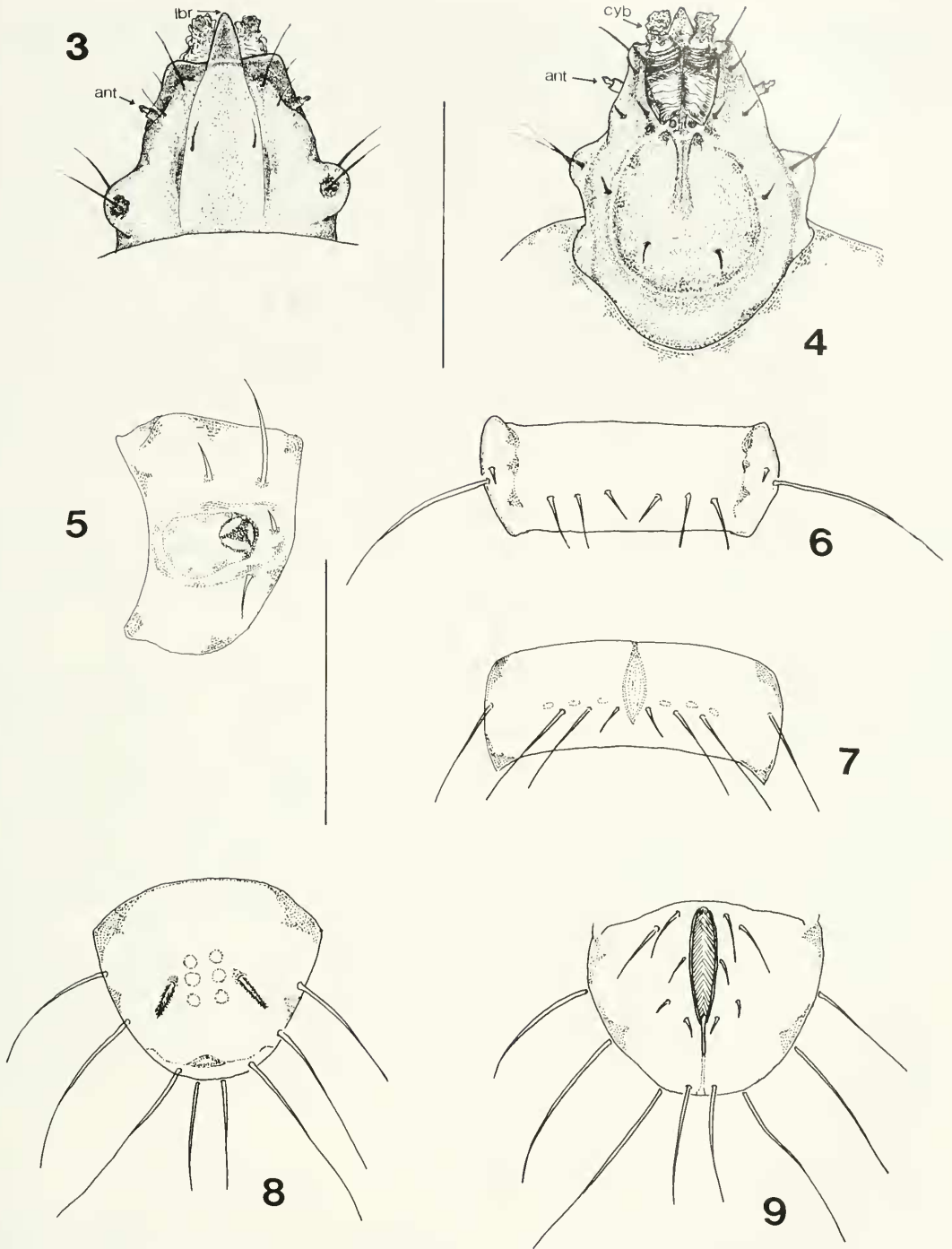
observations suggest that larvae of *C. aurata* feed on microorganisms occurring in the moist areas beneath the bark of trees. The trees where the larvae were found were not identified. We also confirm McFadden's (1967) statement concerning the gregarious behavior of larvae of pachygastrine soldierflies.

The larvae of *C. aurata* were reared in semi-natural conditions, segregated by size classes, and put on individual petri dishes having as substrate the same moist substance present where the larvae were living. A single female was collected flying over a

tree. We believe that oviposition occurs in the moist substrate, through crevices in the bark, because a large number of the smallest larvae of *C. aurata* were found there.

The females that emerged are extremely similar to those described by Lindner (1951), James (1974) and James et al. (1980), but showed a chromatic pattern of the eyes not described by these authors. The eyes in living insects are brownish with a greenish "9-shaped" pattern in lateral view (Fig. 1).

The terminology adopted in the descriptions follows James (1981) and Rozkošný



Figs. 3-9. Larva of *Chalcidomorpha aurata*. 3. Head, dorsal view. 4. Head, ventral view. 5. Right spiracle, lateral view. 6. Abdominal segment 6, dorsal view. 7. Abdominal segment 6, ventral view. 8. Abdominal segment 8, dorsal view. 9. Abdominal segment 8, ventral view. Scale lines = 0.5 mm (Figs. 3-5), = 1.0 mm (Figs. 6-9). Abbreviations: ant = antenna; cyb = cylindrical brushes; lbr = labrum.

and Kovac (1994). The specimens upon which this study is based are in the Coleção Entomológica Costa Lima (CECL), Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro (UFRRJ), Seropédica, Rio de Janeiro, RJ, Brasil.

Chalcidomorphina aurata Enderlein, 1914
(Figs. 1–9)

Chalcidomorphina aurata: Enderlein 1914 (original description); Lindner 1951 (suppl. descr., figs.); James 1973 (catalogue); James 1974 (revision, figs.); James, McFadden, and Woodley 1980 (suppl. descr., key to females, notes on the males, figs.).

Distribution.—Neotropical: Mexico, Panama, Colombia, Peru, Brazil.

Larva (and puparium).—Length 5.0 to 5.3 mm, flattened dorsoventrally, lateral margins of body segments strongly arched. Cuticle with usual mosaic appearance, some cells forming characteristic patches and plaques on abdominal segments 6 and 8. Chromatic pattern yellowish brown, with some dark punctuations (Fig. 2).

Head: Subconical, moderately flat; mandibular-maxillary complex with well developed, cylindrical brushes almost as long as labrum, in dorsal view (Fig. 3); labrum triangular. Antenna short, rising at anterior part of head. Eyes prominent, rounded, arising at the posterior part of the head. Two pairs of lateral setae, one pair of clypeofrontal setae and one pair of dorsolateral setae inserted above eyes; three pairs of ventrolateral setae and three pairs of spine-like ventral setae (Figs. 3–4).

Thorax: First segment shorter than others. Spiracle prominent and V-shaped, with a small anterolateral spiracular seta, in lateral view with two dorsal setae and one ventral seta (Fig. 5). First segment with two rows of setae in dorsal view: two pairs of anterodorsal setae and three pairs of dorsal setae. In ventral view, two pairs of ventral setae and one pair of ventrolateral setae near spiracle. Second and third segments

with one row of setae with four pairs of dorsal setae and three pairs of ventral setae (Fig. 2).

Abdomen: Segments 1–7 similar in shape to thoracic segments (Fig. 2), with a row of five pairs of dorsal setae and four pair of ventral setae (Fig. 6–7); ventromedial line of segment 6 with an elliptical sternal patch (Fig. 7); segment 8 rounded, with three pairs of conspicuous plaques along dorsomedial line between a pair of pennate dorsocentral setae (Fig. 8), four pairs of lateral setae, apical pair shorter than others; opening of spiracular chamber with a fringe of small setae, anal slit on ventral side emarginate with a long fringe of setae on each side (Fig. 9).

Material examined.—Brazil, Rio de Janeiro, Ilha da Marambaia, 17.II.1998 (R. Xerez col.), 4 females (emerged: 04.III.1998; 2.IV.1998 and 9.IV.1998) and 2 larvae (last instar).

Comments.—*Chalcidomorphina* larvae share some features with the genera keyed by James (1981). The larva keys to the second half of couplet 21. Then, the features are distributed in several couplets. Couplet 21 segregates two groups: first half: [*Berkshiria* + *Neopachygaster*] and second half: [*Gowdeyana* + *Eidalimus* + *Pachygaster* + *Zabrachia*]. However, *Chalcidomorphina* also shares a feature with *Neopachygaster* (second half of couplet 22, three pairs of conspicuous plaques along dorsomedial line of abdominal segment 8) and differs in the same couplet by the shape of sternal patch of abdominal segment 6 (oval in *Neopachygaster*).

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